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**Overhead 3: Drink Report**

**Handout 13: *Sip Smart! BC™* Drink Diary**

**Overhead 7: Every Serving Counts**

**Overhead 9: Acid in Drinks**

**Teacher Resource 20: Caffeine Symptoms**

**Teacher Resource 21: Caffeine Scenario**

**Handout 15: Check the Caffeine**

**Overhead 8: Caffeine Report**

**Handout 16: Observations of “Tooth” Experiment**

**Overhead 10: “Tooth” Experiment Report**

**Teacher Assessment Rubric:**

**Observations of “Tooth” Experiment**

➔ **Note to Teachers:** Overheads can also be idea-starters for drawing your own visuals.

Resources are also available online at [www.sipsmart.ca](http://www.sipsmart.ca), click “Teachers” and then “Quick Prints”.

# Lesson 3 Not Just Sugar

## Key Messages

- The number and size of servings we drink affect the amount of sugar we consume.
- Knowing what is in drinks helps us to make healthy choices.
- Drinking sugary drinks “bumps out” nutritious drinks.
- Some ingredients in sugary drinks other than sugar, such as acid and caffeine, can damage our health.

## Objectives

- To discuss the implications of the **Sip Smart! BC™ Drink Diary** report.
- To consider how drinking sugary drinks displaces healthy drinks.
- To report how much caffeine is in drinks.
- To consider the effects of caffeine on the body.
- To connect dental health with healthy drink choices.
- To follow the scientific method and report observations on the effect of acid on dental health.

## Activity Overview

### Level 1:

Drink Report II	5 minutes
“Bump Out”	10 minutes
Caffeine Check	n/a
“Tooth” Experiment Part I	20 minutes
<hr/>	
<b>35 minutes</b>	

### Level 2:

Drink Report II	5 minutes
“Bump Out”	5 minutes
Caffeine Check	15 minutes
“Tooth” Experiment Part I	15 minutes
<hr/>	
<b>40 minutes</b>	

**Knowing what is in  
drinks helps us to  
make healthier choices**



# Activity 1. Drink Report II (5 mins)

## Key Messages

- The number and size of servings we drink affect the amount of sugar we consume.
- Knowing what is in drinks helps us to make healthy choices.

## Objectives

- To discuss the implications of the Drink Diary report.

## Preparation

- Calculate the results of the second **Sip Smart! BC™ Drink Diary** using the *Drink Diary Calculator*. This calculates the added sugar in drinks, and the sugar in juice reported by students for 1 day.
- Fill in Overhead 3: *Drink Report*.
- Copy Handout 13: **Sip Smart! BC™ Drink Diary** for each student.
- **Note:** This lesson assumes students will have completed 1 **Sip Smart! BC™ Drink Diary** and their reports have been summarized. For additional details see Lesson 1, Activity 3.

**SIP SMART! BC™ DRINK REPORT**

	1	2	3
How much water did your class drink?			
How much plain milk did your class drink? (For each cup, write the amount of milk in the box.)			
How many servings of unsweetened soy beverage did your class drink?			
How many servings of sugar-sweetened beverages did your class drink?			
How many servings of juice did your class drink?			
How many servings of coffee/tea did your class drink?			
How many servings of other beverages did your class drink?			

**REMEMBER!**  
Maximum recommended amount of added sugar per student per day:  
13 sugar cubes = 13 teaspoons

## Activity

### Level 1 and Level 2

- Report results of last **Sip Smart! BC™ Drink Diary** to the students using Overhead 3: *Drink Report*.
- Discuss results. For example: encourage class to increase consumption of plain milk or unsweetened fortified soy beverage (if needed), limit sugary drinks (if needed), etc.
- Compare the results of **Sip Smart! BC™ Drink Diary I** and **II**.
- Discuss if the class has reached their goal.
- Distribute Handout 13: **Sip Smart! BC™ Drink Diary** and ask students to fill in **Sip Smart! BC™ Drink Diary III**. (For details, see Lesson 1 or the *Drink Diary Background*)
- If you sent home the **Sip Smart! BC™ Booklet** and Handout 18: *Crossword Puzzle* at the end of Lesson 2, take a few minutes to discuss the answers with the students. Handout 19: *Crossword Puzzle (Answer Key)* can also be made into an overhead. See *Answer Key* in Lesson 2, Resources section.
- **The Drink Diary Calculator makes it easy to summarize class results!**  
For details, see Lesson 1 or the *Drink Diary Background*.

## Activity Tips

Congratulate the class on any decrease in consumption of sugary drinks and on any increase in healthy choices.

If there is no progress toward positive goals, ask students why they think this is so.

## The Punchline!

Now that we see what our class is drinking, how well are we progressing toward achieving our goal? Should we...

- drink more water or more plain milk/unsweetened fortified soy beverage?
- drink fewer sugary drinks?
- celebrate our great drinking habits?

# Activity 2. "Bump Out" (5-10 mins)

## Key Messages

- Drinking sugary drinks "bumps out" nutritious drinks.

## Objectives

- To consider how drinking sugary drinks displaces healthy drinks.

### The Punchline!

Every serving counts. When we choose sugary drinks we bump out drinks that provide us with important nutrients.

## Preparation

You need:

- 8 large sticky notes
- Chalk
- Optional: 2 or 3 skipping ropes
- **Sip Smart! BC™ Drink Cut-outs**
- To write WATER on 5 of the sticky notes.
- To write PLAIN MILK on 3 of the sticky notes.

### Level 1

### Level 2

You need:

- Dry erase overhead pens in at least 4 different colours (suggest blue, red, black, green)
- Also:
- Make overhead transparency of Overhead 7: *Every Serving Counts!*

## Activity

10 minutes

- Draw a chalk line on the floor to represent the size of an imaginary stomach. *Optional:* use skipping ropes to outline a "stomach".
- Ask 8 students to come to the front and stand in the stomach area.
- Give each of them 1 of the "plain milk" or "water" sticky notes to represent the 8 cups of fluid per day.
- **Example 1:** *What if you want pop at recess?*
  - Assign the pop *Drink Cut-out* to another student.
  - Have a "pop" student enter the stomach area.
  - 1 pop bottle = 2 cups of liquid, so 2 water students get "bumped" out of stomach.
  - Ask the sugary drink students to sit down.
  - Have students count how many nutritious drinks are left.
- **Example 2:** *What if a friend offers you a sports drink instead of water after your soccer game?*
  - Add a "sports drink" student.
  - 1 sports drink = 3 cups, so take away another 3 cups of healthy drinks (2 water, 1 plain milk).

### Level 1

### Level 2

5 minutes

- Display Overhead 7: *Every Serving Counts!*
- Colour 5 cups blue and 3 cups green to show ideal intake.
- Put new colours on top of the original coloured cups to explain the displacement of healthy drinks.
- **Example 1:** *What if you want pop at recess?*
  - 1 pop bottle = 2 cups of liquid
  - Pop = black
  - Colour 2 water cups black.
- Have students count how many nutritious drinks are left.
- **Example 2:** *What if a friend offers you a sports drink instead of water after your soccer game?*
  - 1 sports drink = 3 cups of liquid
  - Sports drink = red
  - Colour 3 water cups red.
- Have students count how many nutritious drinks are left.

## Activity Tips

The 8 glasses represent the approximately 8 cups of fluid each day required by students their age (9-12 years old). Ideal minimum intake: 5 cups of water, 3 cups of plain milk/unsweetened fortified soy beverage.

Increased activity, warmer weather, illness, etc. may increase fluid needs.

## Activity 3. Caffeine Check (15 mins)

### Key Messages

- Some ingredients in sugary drinks other than sugar, such as acid and caffeine, can damage our health.

### Objectives

- To report how much caffeine is in drinks.
- To consider the effects of caffeine on their body.

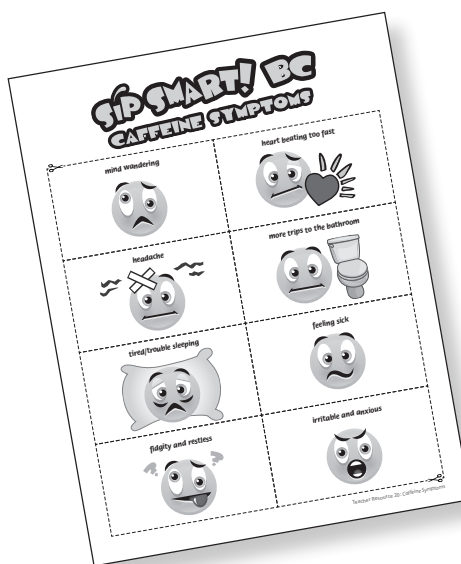
### Preparation

You need:

- Teacher Resource 20: *Caffeine Symptoms*, cut into cards
- Teacher Resource 21: *Caffeine Scenario*.

Also:

- Copy Handout 15: *Check the Caffeine!* for each student.
- Make an overhead transparency of Overhead 8: *Caffeine Report*.
- Find the data about caffeine intake from the last **Sip Smart! BC™** Drink Diary on the *Drink Diary Calculator*.
- Fill in Overhead 8: *Caffeine Report*.
- Review Background: *Caffeine* (page 113).



### The Punchline!

Think about the effects of caffeine on your body before choosing a drink that contains caffeine.

### Activity Tips

Health professionals suggest students aged 7 - 12 consume no more than 65 to 85 mg of caffeine each day.

One cup of coffee in an adult's body will have the effect of 4 cups of coffee in a student's body.

### Activity

Level 2

15 minutes

- Hand out cards from Teacher Resource 20: *Caffeine Symptoms* to different students. Ask those students to listen carefully to the story and "act out" the symptom when it comes up in the story.
- Read Teacher Resource 21: *Caffeine Scenario* to the class.
- Prompt a discussion using questions such as:
  - *How did Tom feel?*
  - *What drinks did he have?*
  - *Have you ever had similar experiences?*
  - *What would have been better choices for Tom?*
- Explain to students how caffeine affects the body.
- Distribute Handout 15: *Check the Caffeine!* and have students complete it.
- Use Overhead 8: *Caffeine Report* to show students' caffeine intake of the last **Sip Smart! BC™** Drink Diary

# Activity 4. "Tooth" Experiment. Part I (15 - 20 mins)

## Key Messages

- Some ingredients in sugary drinks other than sugar, such as acid and caffeine, can damage our health.

## Objectives

- To connect dental health with healthy drink choices.
- To follow the scientific method and report observations on the effect of acid on dental health

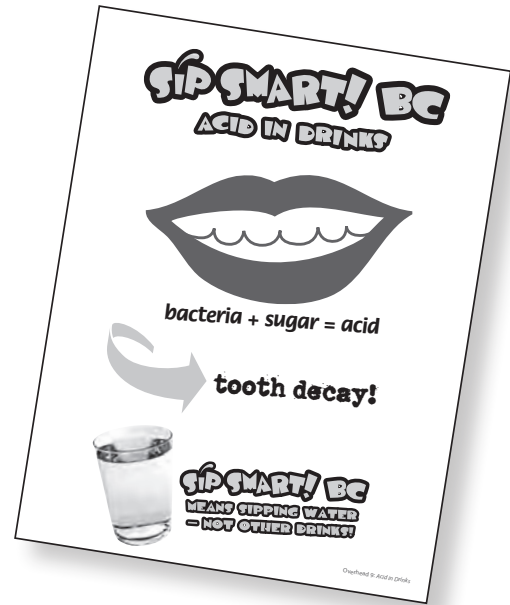
## Preparation

You need:

- 1 can regular cola
- 1 can diet pop
- 1 can clear pop
- 1 can energy drink
- 1 apple juice box
- 1 glass of water
- 6 clear containers (about 200 mL), ideally with lids.
- 6 pieces of bone

Also:

- Make overhead transparency Overhead 9: *Acid in Drinks*.
- Make overhead transparency Overhead 10: *"Tooth" Experiment Report*.
- Copy Handout 16: *Observations of "Tooth" Experiment* for each student.
- Review Background: *The "Tooth" Experiment (page 120)*.
- Review Assessment Tool: *Observations of "Tooth" Experiment*.



## Activity

### Level 1 and Level 2

- Ask students to suggest reasons why acid may harm their teeth.
- Use Overhead 9: *Acid in Drinks* to explain the impact of sugar and acid on our teeth.
- Put students into 6 groups and assign 1 drink and 1 piece of bone to each group.
- Distribute Handout 16: *Observations of "Tooth" Experiment*.
- Ask students to do the following:
  1. Write the drink they are observing on the sheet.
  2. Hypothesize what they think will happen where it says "Based on what I already know, I think..."
  3. Draw a picture of their "tooth" and make observations of what they see, smell and feel.
  4. Place 1 bone piece in their plastic container.
  5. Fill their container with approximately 125 mL of their drink to be observed (e.g. pop).
  6. Write the liquid used on the plastic container.
  7. Leave the container untouched until the next **Sip Smart! BC™** lesson.
  8. Hold on to their handout; it will be completed in the next lesson.
  9. Ask each group to share their hypothesis and collect the ideas on Overhead 10: *"Tooth" Experiment Report*. (Overhead will be completed in Lesson 4)

## Activity Tips

This is a scientific experiment that is to be carried out in groups. Students will observe how sugary drinks can affect teeth.

**Instead of teeth**, you will be using a small piece of bone, which contains calcium and shares many of the same materials as teeth. See Backgrounder: *The "Tooth" Experiment* (page 120) for information about bone preparation. In this lesson, students will set up the experiment. To obtain best results, the pieces of bone should sit submerged for approximately 2 weeks.

Through testing, we've discovered that using: water, cola, diet cola, clear pop, energy drink, and apple juice will likely get you the most interesting variety of results (*see details on page 120*). While students may find it boring to observe the "tooth" in water, it is important as a comparison and for drawing conclusions.

*What is the impact of acid and sugar on our teeth?*

- Sugar + bacteria (in our mouths) ➔ acid.  
This acid attacks our teeth, and, over time, causes decay.
- Many sugary drinks are very acidic, which adds even more acid to what our mouths produce.
- The combination of acid and sugar in sugary drinks can lead to severe tooth decay.

It is important to be sensitive to students' backgrounds. If using an animal bone as a "tooth" is not appropriate for a student's culture and/or religion, see Backgrounder: *The "Tooth" Experiment* for alternate material.

### The Punchline!

This is an experiment, following the scientific method, to find out the effect of drinks (with different amounts of acid in them) on "teeth". We will check the "teeth" to observe changes after 2 weeks.



**Teachers say:**  
"This experiment is well worth the effort!"

## → Resources Lesson 3

- **Note to Teachers:** Overheads can also be idea-starters for drawing your own visuals.
- Resources are also available online at [www.sipsmart.ca](http://www.sipsmart.ca), click "Teachers" and then "Quick Prints".



# SIP SMART! BC™

## DRINK REPORT

	1	2	3
How much water did our class drink?			
How much plain milk and unsweetened fortified soy beverage did our class drink?			
How many students completed a drink diary?			
What is the maximum amount of sugar cubes recommended for our class in one day?			
How many cubes of sugar did we consume?			
How many sugar cubes came from the pop our class drank?			
How many sugar cubes came from the 100% juice our class drank?			

### REMEMBER!

**Maximum** recommended amount of added sugar per student per day:  
13 sugar cubes = 13 teaspoons

# SIP SMART! BC™ DRINK DIARY



Name \_\_\_\_\_ Date \_\_\_\_\_



## Did you have anything to eat or drink:

### Before school?

I had something to eat













☐ Yes

☐ No

I had something to drink

☐ Yes (fill in table below)

☐ No (wait for teacher instruction)

Before school yesterday	Circle the type of container it came in:	Circle the size of your drink:	How many?
	     	S M L XL	
	     	S M L XL	



### When you were at school? (Remember to include recess and lunchtime!)

I had something to eat



















☐ Yes

☐ No

I had something to drink

☐ Yes (fill in table below)

☐ No (wait for teacher instruction)

At school yesterday	Circle the type of container it came in:	Circle the size of your drink:	How many?
	     	S M L XL	
	     	S M L XL	
	     	S M L XL	

 Did you have drinks from the water fountain? ☐ Yes ☐ No


### After school (Did you have anything while you were at an activity, during an evening meal or with a bedtime snack?)

I had something to eat



















☐ Yes

☐ No

I had something to drink

☐ Yes (fill in table below)

☐ No (wait for teacher instruction)

After school yesterday	Circle the type of container it came in:	Circle the size of your drink:	How many?
	     	S M L XL	
	     	S M L XL	
	     	S M L XL	

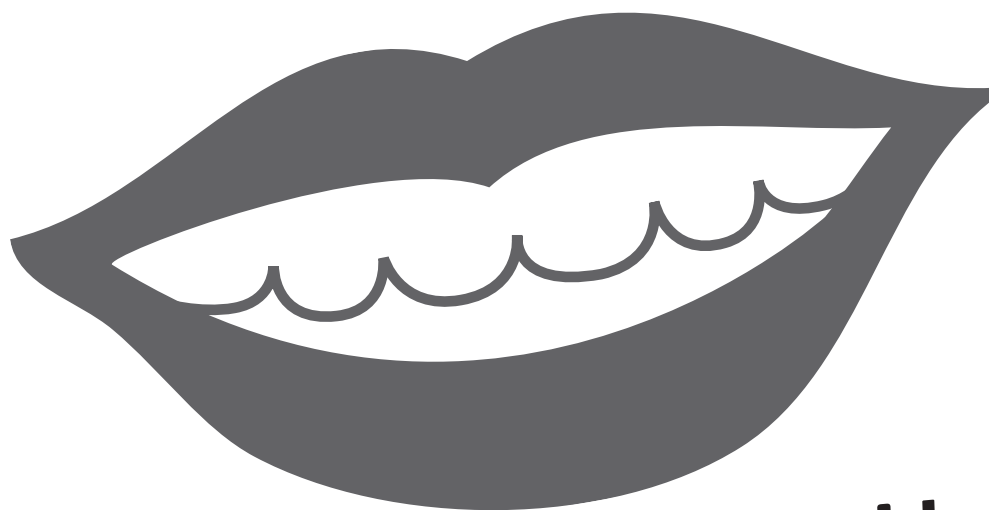
# SIP SMART! BC EVERY SERVING COUNTS!



**Sugary drinks bump out nutritious drinks!**

Overhead 7: Every Serving Counts!

# **SIP SMART! BC** **ACID IN DRINKS**



**bacteria + sugar = acid**



**tooth decay!**



**SIP SMART! BC**  
**MEANS SIPPING WATER**  
**— NOT OTHER DRINKS!**

# SIP SMART! BC

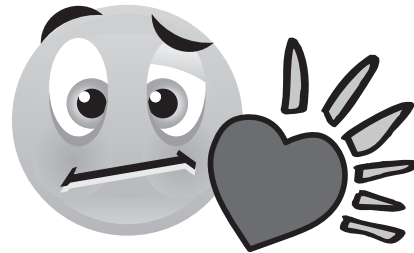
## CAFFEINE SYMPTOMS



*mind wandering*



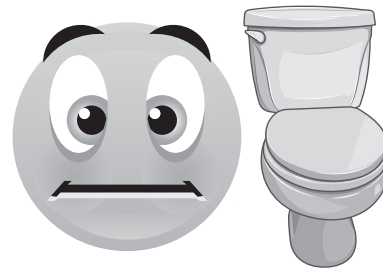
*heart beating too fast*



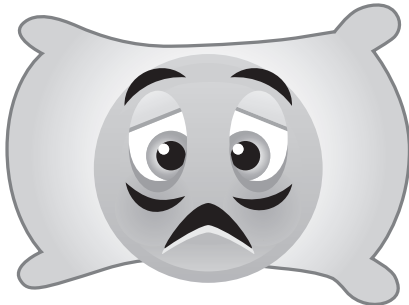
*headache*



*more trips to the bathroom*



*tired/trouble sleeping*



*feeling sick*



*fidgety and restless*



*irritable and anxious*



Teacher Resource 20: Caffeine Symptoms

# SIP SMART! BC

## CAFFEINE SCENARIO

It is a hot and sunny day at the beach.  
Tom is thirsty and goes to the concession stand and buys a can of ICED TEA.  
It's delicious and refreshing.

He feels fit to play beach volleyball for another hour!

After an awesome game, he craves something to pick him up while cooling him down, so he buys a medium ICED COFFEE for the walk home.

Once at home, he remembers that he has a test in school tomorrow. He sits at his desk and starts reading. He notices his **mind wandering** and his **heart beating too fast**. He is getting a **headache**. He also has to **go to the bathroom** way more often than usual.

An hour later he feels **tired**, but he still has to study for the test. In the fridge he finds an ENERGY DRINK. He remembers that the commercial for this drink says that it wakes you up and gives you energy immediately. Exactly what he needs to focus on his studies!

Later, **feeling sick**, he decides to go to bed early. He feels **fidgity and restless**. The next morning he is **irritable** with his friends and **anxious** about just about everything.

### What happened?



# SIP SMART! BC<sup>TM</sup>

## CHECK THE CAFFEINE!

Name \_\_\_\_\_

Date \_\_\_\_\_

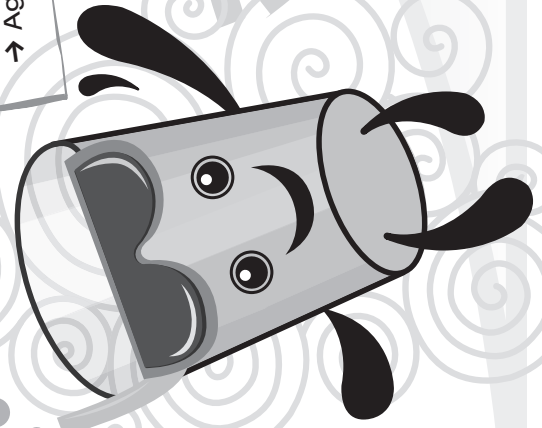
Drink	Serving size (mL)	Caffeine (mg)
Hot Chocolate	300 mL	8 mg
Cola	355 mL	40 mg
Iced tea	355 mL	25 mg
Root beer	355 mL	40 mg
Energy drink	500 mL	160 mg
Coffee (regular)	350 mL	186 mg
Coffee (decaf)	350 mL	4 mg
Iced coffee	500 mL	115 mg
Black or green tea	250 mL	30 mg
Tea (decaf)	240 mL	1 mg

How much caffeine did Tom drink?

Iced tea \_\_\_\_\_ mg  
 Iced coffee \_\_\_\_\_ mg  
 Energy drink \_\_\_\_\_ mg  
 TOTAL \_\_\_\_\_ mg

What is the maximum amount of caffeine that students can safely have in one day?

→ Age 7 to 12 years: \_\_\_\_\_ mg



Circle or highlight the drinks that you've tried before!



# SIP SMART! BC™

## CAFFEINE REPORT



	Caffeine
Caffeine from chocolate milk (7 mg/250 mL)	
Caffeine from cola (29 mg/250 mL)	
Caffeine from energy drinks (80 mg or more/250 mL)	
Caffeine from coffee (158 mg/250 mL)	
Caffeine from tea (30 mg/250 mL)	
How much caffeine did we consume?	

# COMPARE!

Maximum amount of caffeine recommended  
per student/day = 65 to 85 mg (7 to 12 years)

Number of students in class = \_\_\_\_\_

Maximum amount of caffeine  
recommended/class/day = \_\_\_\_\_



# SIP SMART! BC™

## OBSERVATIONS OF "TOOTH" EXPERIMENT

Name: \_\_\_\_\_

Drink being observed: \_\_\_\_\_

Use your senses to observe your "tooth". What does it look like? What colour is it? How big is it? What does it feel like? How does it smell?

## ➡ FIRST OBSERVATION:

What I observe: \_\_\_\_\_

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Drawing of "tooth" before the experiment:

## Hypothesis:

Based on what I know, I think...

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## ➡ FINAL OBSERVATION:

What I observe: \_\_\_\_\_

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Drawing of "tooth" after the experiment:

## Conclusion:

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Drink	Hypothesis	Observation
Regular cola		
Diet cola		
Clear pop		
Energy drink		
Apple juice		
Water		

## Teacher Assessment Rubric

## ➔ Observations of "Tooth" Experiment

Level 1 and Level 2

Name: \_\_\_\_\_

First observation addresses colour, texture and shape of "tooth"	8	6	4	2
First drawing matches first observation	8	6	4	2
Identifies ingredients of assigned drink in hypothesis (Does it contain sugar or acid?)	8	6	4	2
Predicts impact of ingredients on "tooth"	8	6	4	2
Second observation addresses clear differences in colour, texture and shape of "tooth"	8	6	4	2
Second drawing matches second observation	8	6	4	2
Conclusion demonstrates understanding of how the ingredients in the drink contribute to "tooth" erosion and theoretical decay	8	6	4	2
<b>Score</b>	<b>_____ / 56</b>			

**Key:**

- 8 = Exceeding expectations  
 6 = Meets expectations  
 4 = Approaching expectations  
 2 = Not yet meeting expectation



**SIP SMART! BC™**  
**OBSERVATIONS OF "TOOTH" EXPERIMENT**

Name: \_\_\_\_\_  
 Drink being observed: \_\_\_\_\_

Use your senses to observe your "tooth". What does it look like? What colour is it? How big is it?  
 What does it feel like? How does it smell?

● **FIRST OBSERVATION:**

What I observe: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Drawing of "tooth" before the experiment: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Hypothesis:**  
 Based on what I know, I think... \_\_\_\_\_  
 \_\_\_\_\_

● **FINAL OBSERVATION:**

What I observe: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Drawing of "tooth" after the experiment: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Conclusion:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Handout 16: Observations of "Tooth" Experiment